

Claims

1. A breath actuated dry powder inhaler, comprising a substantially disc shaped air circulation chamber for de-agglomeration of entrained powdered medicament using the energy of the inspiratory air stream, the chamber having a substantially circular or polygonal sidewall extending about a central axis between top and bottom walls of the chamber so that the height of the chamber is smaller than its diameter, a plurality of air supply channels disposed about the circumference of the chamber, which channels extend from joint or separate air inlets and which channels enter the chamber substantially tangentially to its sidewall, at least one of the supply channels extending through a powder dose supply region of the inhaler, the chamber further comprising an air outlet axially extending from a discharge opening in the centre of the top or bottom wall of the chamber and connecting to a discharge channel that extends to a mouthpiece, the inhaler comprising at least one further air circulation chamber for de-agglomeration of entrained powdered medicament, the chambers being connected to the mouthpiece in parallel.
2. The breath actuated dry powder inhaler of claim 1, comprising a substantially planar housing, at least one chamber being disposed in the housing such that the central axis of the chamber extends transversely to the plane of the housing and the discharge channel being disposed in the housing such that it extends in the plane of the housing.
3. The breath actuated dry powder inhaler of claim 2, wherein the mouthpiece is provided on an edge of the housing.

4. The breath actuated dry powder inhaler according to any of the preceding claims, wherein the discharge channel and at least one circulation chamber extend in substantially parallel planes.
5. The breath actuated dry powder inhaler according to any of the preceding claims, wherein the housing is built up of a stack of substantially planar elements.
6. The breath actuated dry powder inhaler according to any of the preceding claims, wherein the discharge channel connects substantially transversely to the air outlet of the chamber.
7. The breath actuated dry powder inhaler according to any of claims 1-6, wherein the circulation chambers are substantially identical.

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8. The breath actuated dry powder inhaler according to any of claims 1-7, comprising a plurality of substantially identical disc shaped circulation chambers, the chambers being arranged in parallel and having a substantially circular or polygonal sidewall extending about a central axis between top and bottom walls of the chamber so that the height of the chamber is smaller than its diameter, a plurality of air supply channels disposed about the circumference of the chamber, which channels extend from joint or separate air inlets and which channels enter the chamber substantially tangentially to its sidewall, at least one of the supply channels of each chamber extending through a powder dose supply region of the inhaler, the chambers each comprising an air outlet axially extending from a discharge opening in the centre of the top or bottom wall of the chamber and connecting to joint or separate discharge channels that extend to a mouthpiece, the discharge channels connecting substantially transversely to the air outlets of the chambers.

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9. The breath actuated dry powder inhaler according to any of claims 1-8, wherein the plurality of chambers are connected to a joint powder dose supply region.

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10. The breath actuated dry powder inhaler according to any of claims 1-9, wherein at least two of the chambers are disposed in the same plane.

11. The breath actuated dry powder inhaler according to any of claims 10 1-9, wherein at least two of the chambers are disposed in parallel planes.

12. The breath actuated dry powder inhaler according to claim 11, wherein the joint or separate discharge channels are disposed in a further plane, disposed between the parallel plane.

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13. The breath actuated dry powder inhaler according to any of the preceding claims, wherein the housing is constructed as a disposable unit.

14. The breath actuated dry powder inhaler according to any of the 20 preceding claims, wherein the or each powder dose supply area is formed by a sealed dose compartment containing a pre measured dose of powdered medicament, the dose compartment being included in the supply channel and blocking air passage through the channel until removal of the seal of the dose compartment.

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15. The breath actuated dry powder inhaler according to any of the preceding claims, wherein the or each sealed dose compartment is a blister pocket sealed with a removable cover foil.

16. The breath actuated dry powder inhaler according to any of the preceding claims, further comprising a carrier carrying a plurality of sealed dose compartments, the compartments on the carrier being indexable relative to the or each supply area of the inhaler.

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17. A device for pulmonary inhalation, wherein dry powder medicament is inhaled from an inhaler and wherein the dry powder is de-agglomerated in a substantially disc shaped air circulation chamber in the inhaler using the energy of the inspiratory air stream, and wherein, under the action of the 10 inspiratory air stream, the de-agglomerated medicament is axially discharged from the circulation chamber and is subsequently changed in direction to be fed in transverse direction towards a mouthpiece.

18. A device for pulmonary inhalation, wherein dry powder medicament 15 is inhaled from an inhaler and wherein the dry powder is de-agglomerated in a plurality of substantially disc shaped air circulation chambers arranged in parallel in the inhaler using the energy of the inspiratory air stream, and wherein, under the action of the inspiratory air stream, the de-agglomerated medicament is axially discharged from the circulation chambers and is 20 subsequently fed towards a mouthpiece.

19. The device according to claim 18 or 19, wherein larger particles are retained in the chamber by classifying action of the air circulation chamber.

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